Novel All-Passive Lightpipe Illumination, Phase I

Completed Technology Project (2005 - 2005)

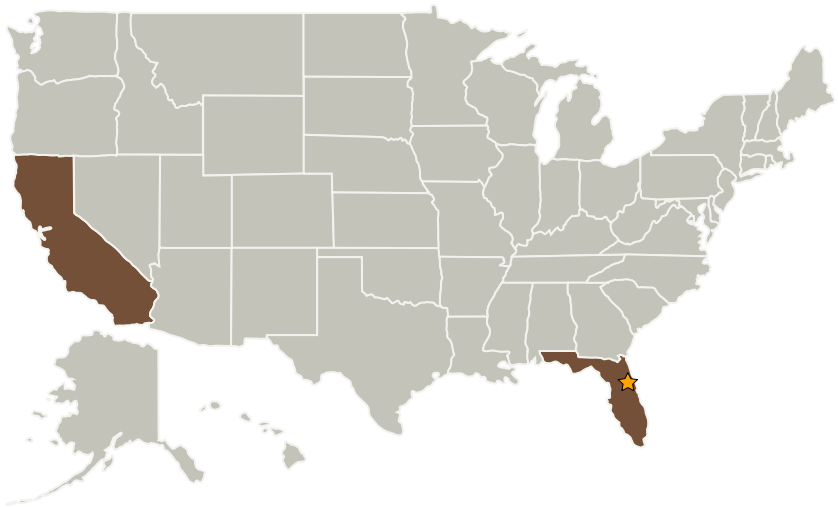
Project Introduction

This SBIR proposal aims to develop all-passive fiberoptic lighting systems that can be used on long space missions or here on earth. By addressing the traditional problems of concentration and solar tracking in a novel way, we will create a high efficiency lighting system that is also very durable and inexpensive. In this Phase I work, Applied Optical Materials will research two distinct methods for improving on conventional plastic fiber lighting technology. These innovations are directly relevant to the concentration efficiency of the system and have very high potential to reduce the cost and maintainability of passive lighting systems to a level commensurate with business and consumer applications.

Anticipated Benefits

Americans spend over $40 billion annually to light homes and offices, and our consumption of electricity is directly related to dire ecological consequences such as global warming. The proposed system can address the needs of residential and commercial lighting in an economical and ecologically sound way. There is a need to find inexpensive, durable and power efficient means of lighting crops, promoting biomass decomposition, illuminating living quarters, etc. for longer space missions.

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Kennedy Space Center (KSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Kennedy Space Center(KSC)	Lead Organization	NASA Center	Kennedy Space Center, Florida
Applied Optical Materials	Supporting Organization	Industry	Fallbrook, California

Primary U.S. Work Locations	
California	Florida

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Project Manager:

Daniel C Shultz

Principal Investigator:

J Cammack

Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.1 Cryogenic Systems
    - TX14.1.1 In-space Propellant Storage & Utilization